

Service Manual

AS14

Clock Radio

FM-AM-FM Stereo Clock Radio

RC-X210

(Black)

(White)

This is the Service Manual
for the following areas.

[ZI] ...For Italy and
Finland.

[ZG] ...For F.R. Germany.

- Please use this manual together with the service manual for model No. RC-X210[M] order No. GAD8702008C1.
- This service manual indicates the main differences between; Original RC-X210[M] and RC-X210[ZI], [ZG].

CHANGES

■ SPECIFICATIONS

Frequency Range:	FM; 88~108 MHz	→	FM; 87.5~108 MHz
Power Requirement:	AC; 120V, 60Hz	→	AC; 220V, 50 Hz
Power Consumption:	12W (AC Only)	→	10W (AC Only)
	(Model RC-X210[M])		(Model RC-X210 [ZI], [ZG])

Panasonic

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

■ REPLACEMENT PARTS LIST

Notes:

1. Important safety notice
Components identified by $\triangle$ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
2. The letter in square brackets in the Ref. No. column indicates the shipping destination.
[ZI] For Italy and Finland.
[ZG] For F.R. Germany.
3. The letter in circles in the Ref. No. column indicates the color of the product.
Ⓚ...Black Type, Ⓜ...White Type
4. $\square$ Indicates parts that are supplied by MESA.

Ref. No.	Description	Parts Number		Remarks
		RC-X210 $\square$	RC-X210[ZI], [ZG]	
R45	CARBON, 1/4W, 2.7k Ω	ERDS2TJ102	ERDS2TJ272	
R80	CARBON, 1/4W, 4.7k Ω	—	ERDS2TJ472	Added
C9, 117	ELECTROLYTIC, 16V, 10 μ F	ECEA1CU100	ECEA1CU100E	
C40	CERAMIC, 50V, 20 μ F	ECCT1H180KC	ECCW1H200JC	
C89	SEMICONDUCTOR	ECFW1C223MDY	—	Deleted
C120	ELECTROLYTIC, 6.3V, 470 μ F	ECEA0JU471	ECEA0JU471E	
C124	SEMICONDUCTOR, 50V, 0.0047 μ F	ECFT1C103MD	ECKD1H472MD	
C125	SEMICONDUCTOR, 50V, 0.0047 μ F	—	ECKD1H472MD	Added
C213	SEMICONDUCTOR, 16V, 0.022 μ F	—	ECFW1C223MDY	Added
L34	COIL	RL04Y116	RL04N237-0	$\square$
T201	POWER TRANSFORMER ASS'Y	1LTRCX210M-1	1LTRCX210Z-1	$\triangle$ $\square$
F201	FUSE, T500mA	—	XBA2C05TB0	$\triangle$ $\square$ Added
K1	DISPLAY	RADTLG2268	RADTLG4262	$\square$
K4 [ZI]	REAR CABINET ASS'Y Ⓚ	RKF882ZA-0	RYFCX210ZIKS	$\square$
K4 [ZI]	REAR CABINET ASS'Y Ⓜ	RKF882ZA-8	RYFCX210ZIK8	$\square$
K4 [ZG]	REAR CABINET ASS'Y Ⓚ	RKF882ZA-0	RYFCX210ZGKS	$\square$
K4 [ZG]	REAR CABINET ASS'Y Ⓜ	RKF882ZA-8	RYFCX210ZGK8	$\square$
K4-1 [ZI]	NAME PLATE Ⓚ	—	RGT1299VA-0	$\square$ Added
K4-1 [ZI]	NAME PLATE Ⓜ	—	RGT1299VA-1	$\square$ Added
K4-1 [ZG]	NAME PLATE Ⓚ	—	RGT1299WA-0	$\square$ Added
K4-1 [ZG]	NAME PLATE Ⓜ	—	RGT1299WA-1	$\square$ Added
K5	FRONT CABINET ASS'Y Ⓚ	RYMCX210MKS	RYMCX210ZIKS	$\square$
K5	FRONT CABINET ASS'Y Ⓜ	RYMCX210MKS8	RYMCX210ZIK8	$\square$
K12	BUTTON Ⓜ	RBC1080ZA-2	RBC1080ZA-3	$\square$
K13	BUTTON Ⓜ	RBC1081ZA-0	RBC1081ZA-2	$\square$
K23	P.C.B.	RUP2258ZAU	RUP2258XAU	$\triangle$ $\square$
K25	HOLDER	—	QTF1054	$\triangle$ Added
K26	SHIELD PLATE	—	RHR351ZA	$\square$ Added
A1	INSTRUCTION MANUAL	RQX4957ZA	RQX4960ZA	$\square$
P1	PROTECTION COVER	XZB40X75A02	XZB40X25A04	$\square$
P2	CARTON BOX	RPK2459ZA	RPK2482ZA	$\square$

MEASUREMENTS AND ADJUSTMENTS

AM ALIGNMENT

AM-RF ALIGNMENT						
(2)	AM	"	511kHz	Tuning capacitor fully closed.	"	L36 (AM OSC Coil) Adjust for maximum output.
(3)	AM	"	1,650kHz	Tuning capacitor fully open.	"	CT1-4 (AM OSC Trimmer) "
(4)	AM	"	550kHz	Tune to signal.	"	(*1) L35 (AM ANT Coil) Adjust for maximum output. Adjust L35 by moving coil bobbin along ferrite core.
(5)	AM	"	1,500kHz	"	"	CT1-3 (AM ANT Trimmer) Adjust for maximum output. Repeat steps (2)~(5).
(*1) Cement antenna bobbin with wax after completing alignment.						

FM ALIGNMENT

FM-RF ALIGNMENT						
(3)	FM	Connect to test point ▼ through FM dummy antenna. Negative side to test point ▼.	86.2MHz	Variable capacitor fully closed.	Output meter across voice coil.	L34 (FM OSC Coil) (*2) Adjust for maximum output.
(4)	FM		109.2MHz	Variable capacitor fully open.	"	CT1-2 (FM OSC Trimmer) "
(5)	FM		106MHz	Tune to signal.	"	CT1-1 (FM ANT Trimmer) (*2) Adjust for maximum output. Repeat steps (3)~(5).
(*2) Three output responses will be present; proper tuning is the center frequency.						

(Model RC-X210 [M])

AM ALIGNMENT

AM-RF ALIGNMENT						
(2)	AM	"	514kHz	Tuning capacitor fully closed.	"	L36 (AM OSC Coil) Adjust for maximum output.
(3)	AM	"	1,639kHz	Tuning capacitor fully open.	"	CT1-4 (AM OSC Trimmer) "
(4)	AM	"	550kHz	Tune to signal.	"	(*1) L35 (AM ANT Coil) Adjust for maximum output. Adjust L35 by moving coil bobbin along ferrite core.
(5)	AM	"	1,500kHz	"	"	CT1-3 (AM ANT Trimmer) Adjust for maximum output. Repeat steps (2)~(5).
(*1) Cement antenna bobbin with wax after completing alignment.						

FM ALIGNMENT

FM-RF ALIGNMENT							
(3)	FM	Connect to test point ▼ through FM dummy antenna. Negative side to test point ▲.	87.37 MHz	Variable capacitor fully closed.	Output meter across voice coil.	L34 (FM OSC Coil)	(※2) Adjust for maximum output.
(4)	FM		108.35 MHz	Variable capacitor fully open.	〃	CT1-2 (FM OSC Trimmer)	〃
(5)	FM		106 MHz	Tune to signal.	〃	CT1-1 (FM ANT Trimmer)	(※2) Adjust for maximum output. Repeat steps (3)~(5).
(※2) Three output responses will be present; proper tuning is the center frequency.							

(Model RC-X210 [ZI], [ZG])

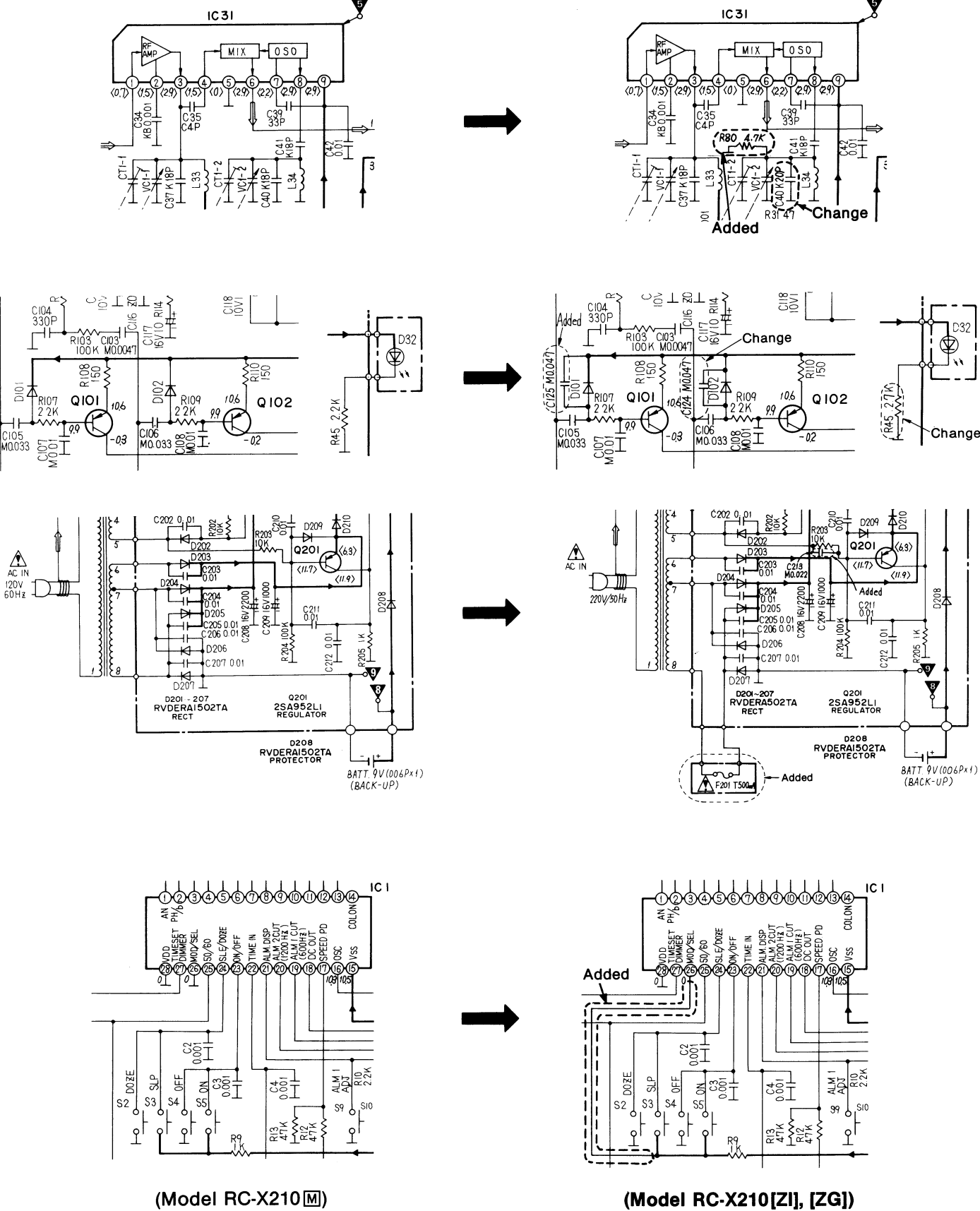
ALIGNMENT POINT

AM OSC 511kHz L36	AM OSC 1,650kHz CT1-4	FM OSC 87.3MHz L34	FM OSC 109.2MHz CT1-2	AM OSC 514kHz L36	AM OSC 1,639kHz CT1-4	FM OSC 87.37MHz L34	FM OSC 108.35MHz CT1-2
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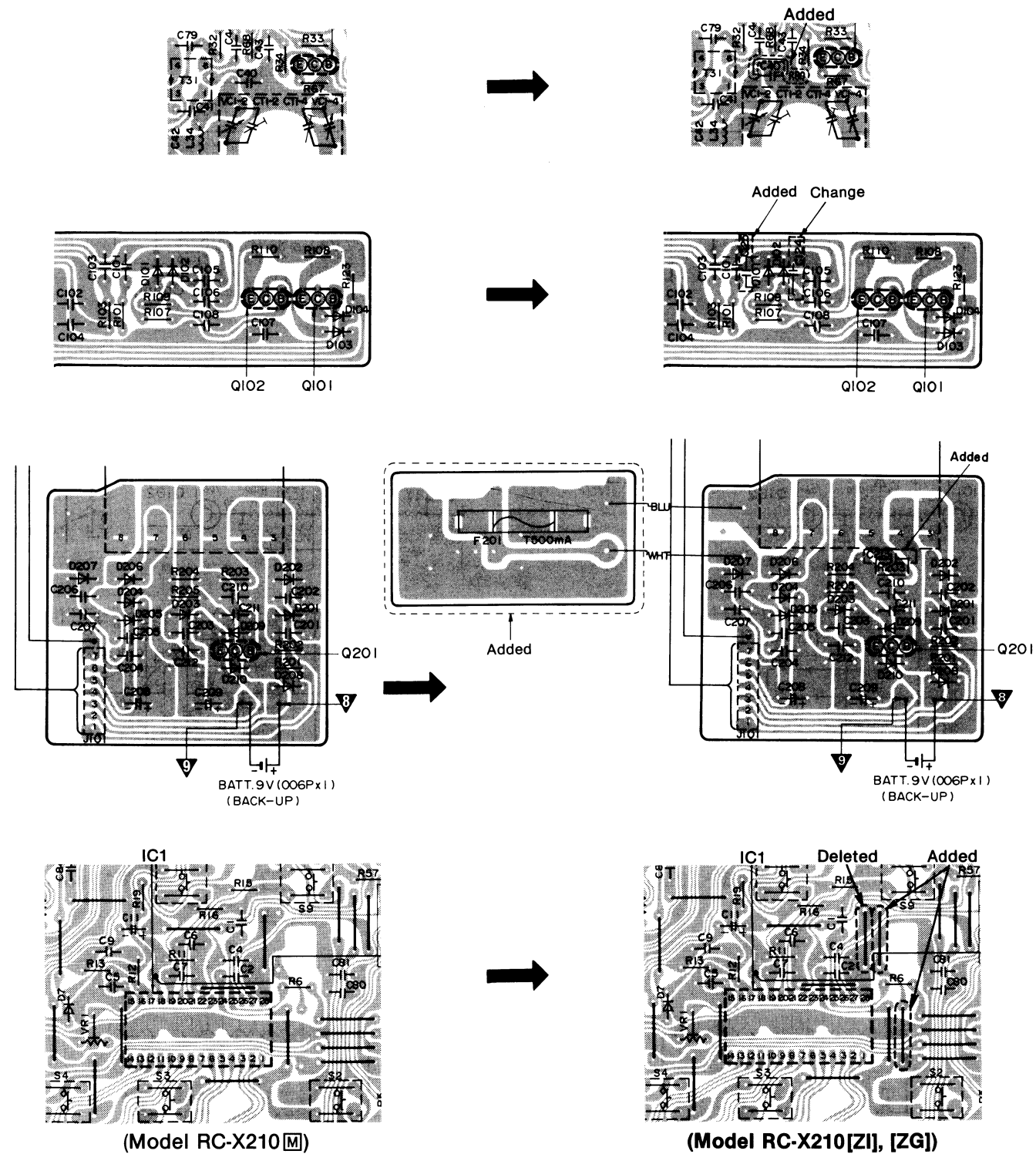
(Model RC-X210 [M])

(Model RC-X210 [ZI], [ZG])

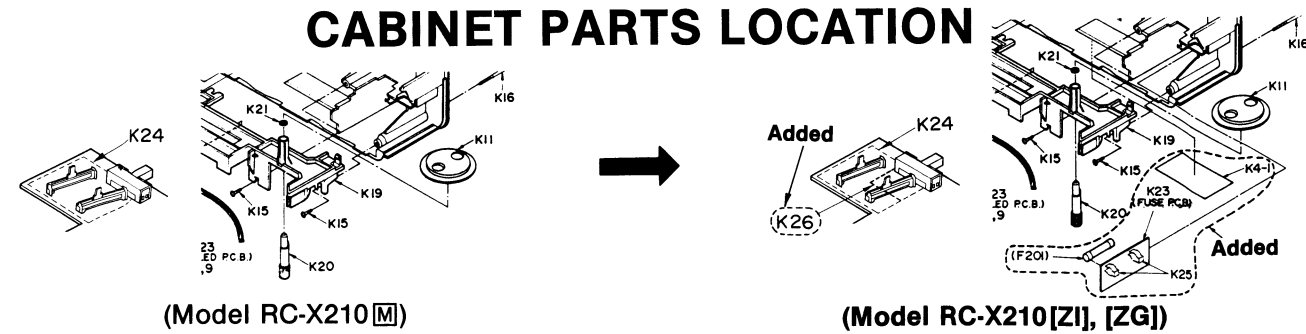
SCHEMATIC DIAGRAM



CIRCUIT BOARD AND WIRING CONNECTION DIAGRAM



CABINET PARTS LOCATION



Service Manual

Clock Radio

RC-X210
(Black) (Lavender)
(White)

FM-AM-FM Stereo Clock Radio



This is the Service Manual
for the following area.

M ... For U.S.A.

■ SPECIFICATIONS

Frequency Range:	FM; 88~108MHz AM; 525~1610KHz
Intermediate Frequency:	FM; 10.7 MHz AM; 455KHz
Sensitivity:	FM; 2.5 μ V/50mW output (−3dB Limits) AM; 100 μ V/50mW output
Power Requirement:	AC; 120V, 60Hz Battery; 9V(006P/6F22) for Battery Back-up
Power Output:	2W (1 W $\times$ 2) RMS (max)
Power Consumption:	12W(AC Only)
Speaker:	3"(8cm)X2 PM Dynamic Speaker (16 Ω)
Input:	Audio; ϕ 3.5
Output:	Headphones; ϕ 3.5, 16~32 Ω
Dimensions:	11"(W)x3 13/16"(H)x3 15/16"(D) (280x97.5x100)mm
Weight:	3lb 1oz.(1.4kg) Without Battery

Design and specifications are subject to change without notice.

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SAFETY PRECAUTIONS (For U.S.A.)

1. Before servicing, unplug the power cord to prevent an electric shock.
2. When replacing parts, use only manufacturer's recommended components for safety.
3. Check the condition of the power cord. Replace if wear or damage is evident.
4. After servicing, be sure to restore the lead dress, insulation barriers, insulation papers, shields, etc.
5. Before returning the serviced equipment to the customer, be sure to make the following insulation resistance test to prevent the customer from being exposed to a shock hazard.

INSULATION RESISTANCE TEST (For U.S.A.)

1. Unplug the power cord and short the two prongs of the plug with a jumper wire.
2. Turn on the power switch.
3. Measure the resistance value with ohmmeter between the jumpered AC plug and each exposed metal cabinet part, such as screwheads, antenna, control shafts, handle brackets, etc. Equipment with antenna terminals should read between $3\text{M}\Omega$ and $5.2\text{M}\Omega$ to all exposed parts. (Fig. 1) Equipment without antenna terminals should read approximately infinity to all exposed parts. (Fig. 2)
*** Note:** Some exposed parts may be isolated from the chassis by design. These will read infinity.
4. If the measurement is outside the specified limits, there is a possibility of a shock hazard. The equipment should be repaired and rechecked before it is returned to the customer.

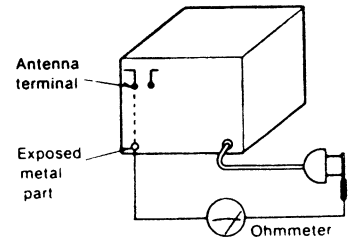


Fig. 1

Resistance = $3\text{M}\Omega$ — $5.2\text{M}\Omega$

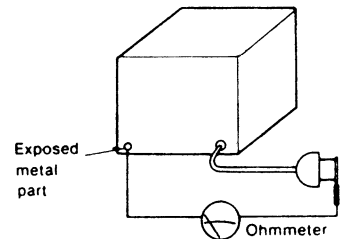
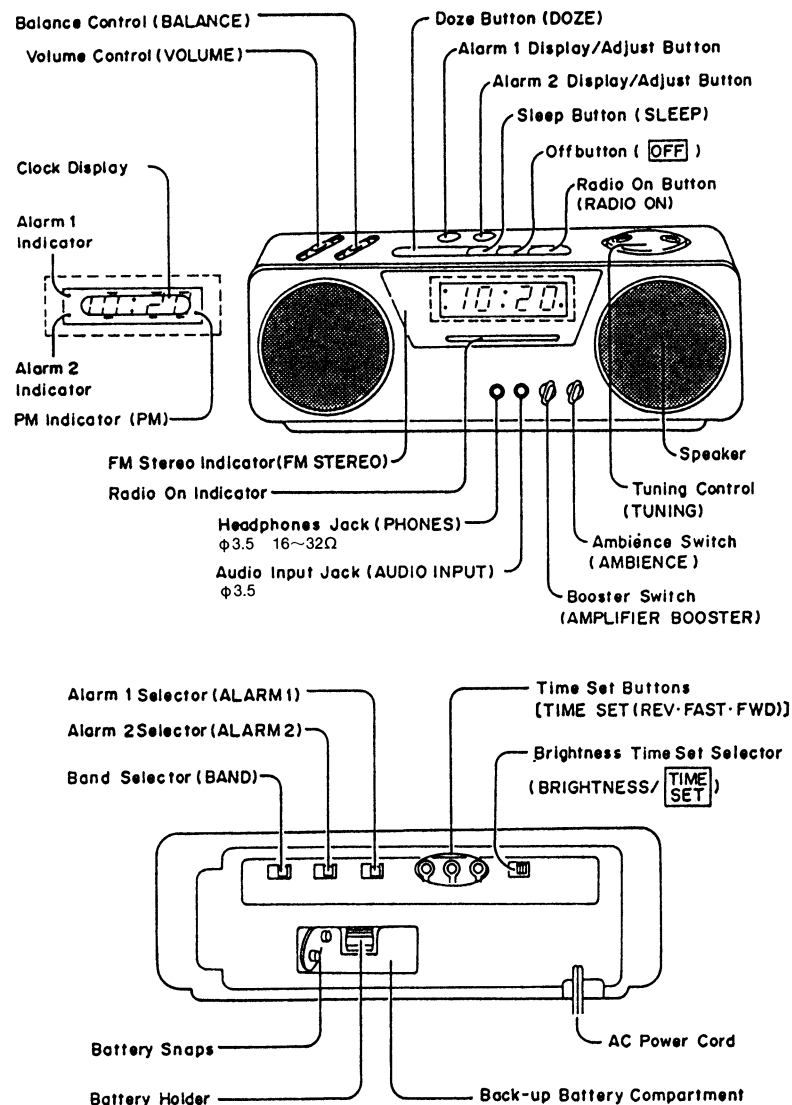


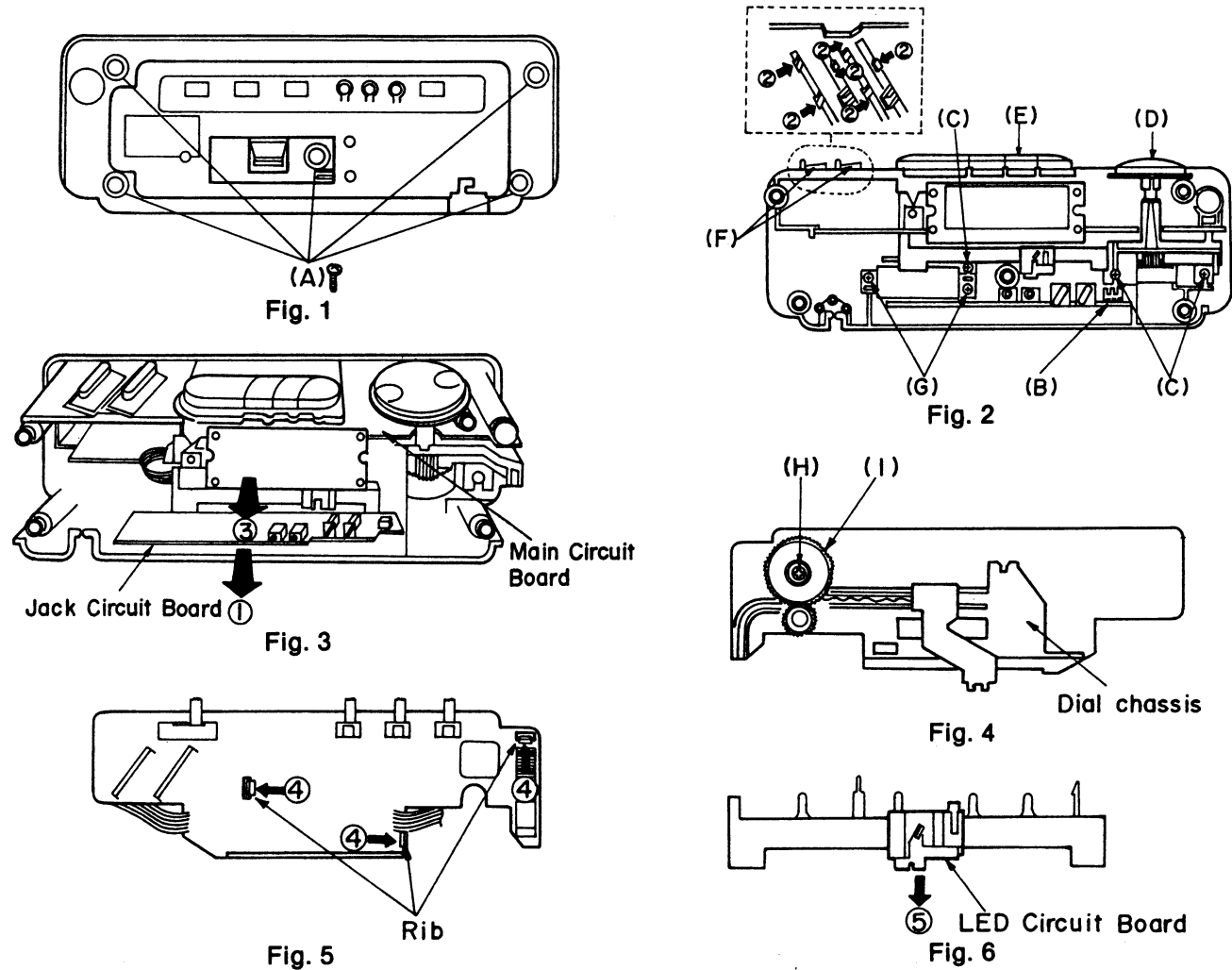
Fig. 2

Resistance = Approx ∞

LOCATION OF CONTROLS AND COMPONENTS



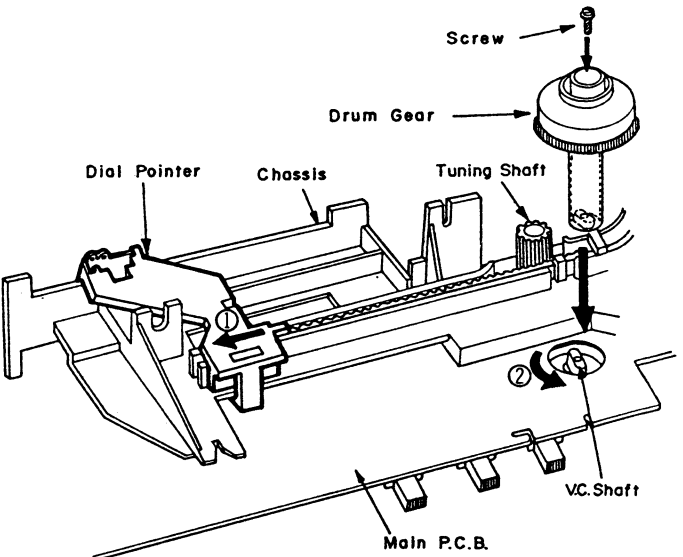
DISASSEMBLY INSTRUCTIONS



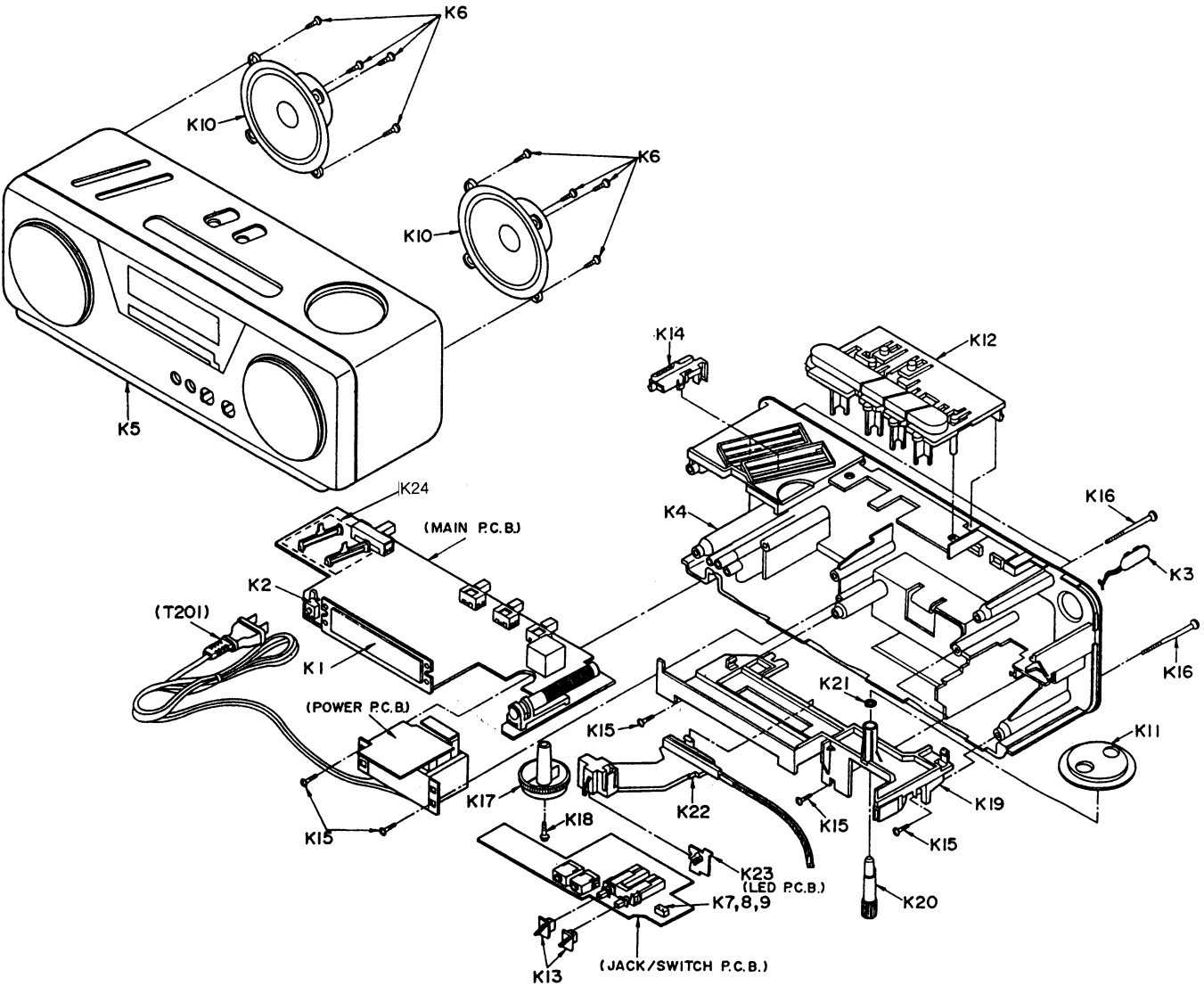
Steps	Shown in Fig. —.	To remove —.	Remove —.
1	1	Front Cabinet Ass'y	Screw (3×20)mm(A)×5
2	2		Socket (CN101).....(B)×1
3	3	Jack Circuit Board	Pull out the board in the direction of arrow ①.
4	2	Main Circuit Board	Screw (3×12)mm(C)×3
5			Tuning Knob(D)×1
6			Switch Button.....(E)×1
7			Volume/Balance Knob(F)×2 (Remove the rib in the direction of arrow ②.)
8	3		Pull out the board in the direction of arrow ③.
9	2	Power Transformer Circuit Board	Screw (3×12)mm(G)×2
10			
11	4	Dial Chassis	Screw (2.6×6)mm(H)×1
12			Tuning Gear(I)×1
13	5		Remove the rib in the direction of arrow ④.
14	6	LED Circuit Board	Pull out the board in the direction of arrow ⑤.

■ Dial Setting Point

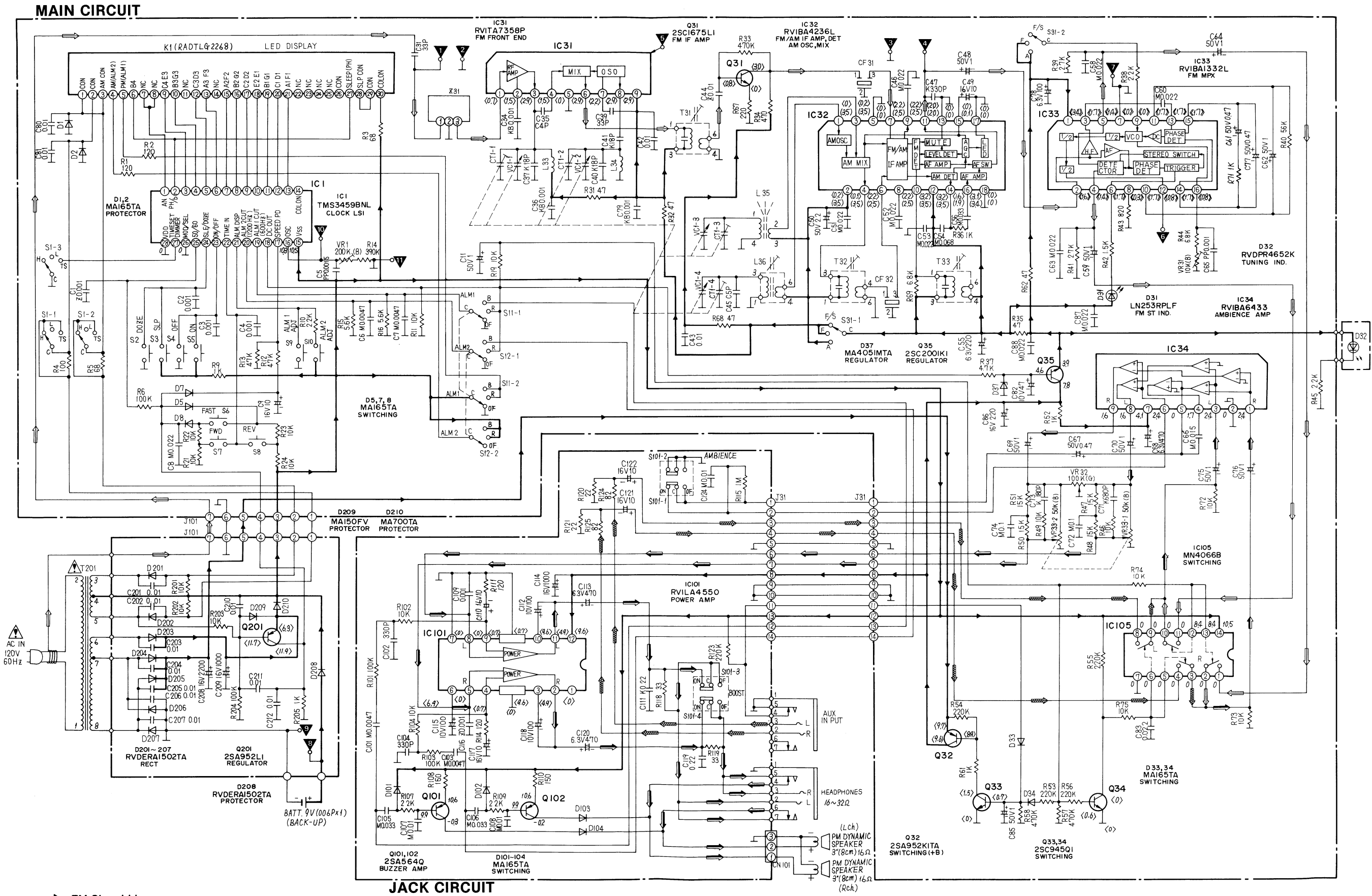
1. Attach the dial pointer to the chassis. Make sure the dial pointer rack and the tuning gear teeth mesh properly.
2. Move the dial pointer all the way in the direction of arrow ①.
3. Turn the variable capacitor shaft all the way in the direction of arrow ②.
4. Fit the drum gear on the variable capacitor shaft and secure it in place with a screw. Make sure the tuning shaft teeth and drum gear teeth mesh properly.



CABINET PARTS LOCATION

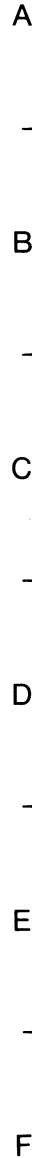


SCHEMATIC DIAGRAM



FM Signal Line
AUX IN Signal Line
Main (FM/AUX IN) Signal Line
+B Line

A horizontal number line with tick marks at every integer from 1 to 12. The numbers 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, and 12 are written above their respective tick marks. The segment of the line between the tick marks for 8 and 9 is shaded gray.



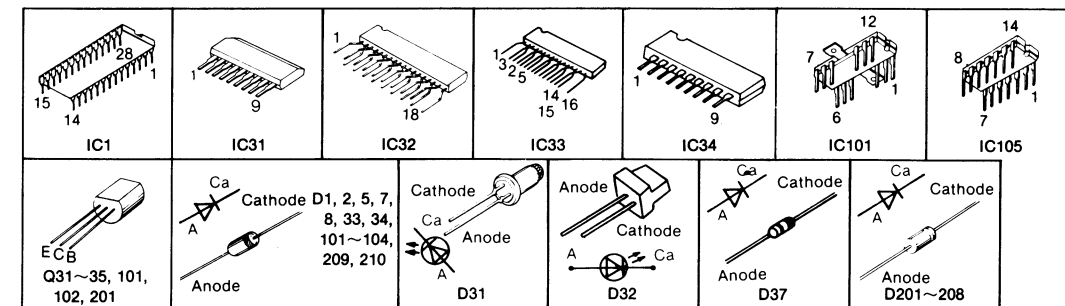
1. S1-1~S1-3: Brightness switch in “HIGH” position.
(TS...TIME SET, L...LOW, H...HIGH)
2. S2: Doze switch.
3. S3: Sleep switch.
4. S4: Radio off switch.
5. S5: Radio on switch.
6. S6: Time set (FAST) switch.
7. S7: Time set (FWD) switch.
8. S8: Time set (REV) switch.
9. S9: Alarm [1] display/adjust switch.
10. S10: Alarm [2] display/adjust switch.
11. S11-1, S11-2: Alarm [1] function select switch in “OFF” position.
(B...Buzzer, R...Radio, OF...OFF)
12. S12-1, S12-2: Alarm [2] function select switch in “OFF” position.
(B...Buzzer, R...Radio, OF...OFF)
13. S31-1, S31-2: Band select switch in “FM STEREO” position.
(F/S...FM STEREO, F...FM, A...AM)
14. S101-1~S101-4: Ambience/amplifier booster switch in “ON” position.

— 7 —

- **This schematic diagram may be modified at any time with the development of new technology.**

NOTES:

- The circuit shown in  on the conductor indicates printed circuit on the back side of the printed circuit board.
- **The circuit board diagram may be modified at any time with the development of new technology.**



MEASUREMENTS AND ADJUSTMENTS

■ ALIGNMENT INSTRUCTION

READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT	
1. Set volume control to maximum.	4. Set power source voltage to 9V DC.
2. Set tone control to maximum.	5. Output of signal generator should be no higher than necessary to obtain an output reading.
3. Set function selector to AM or FM ST.	

■ AM ALIGNMENT

BAND	SIGNAL GENERATOR or SWEEP GENERATOR		RADIO DIAL SETTING	INDICATOR (ELECTRONICS VOLTMETER or SCOPE)	ADJUSTMENT	REMARKS
	CONNECTIONS	FREQUENCY				
AM-IF ALIGNMENT						
(1)	AM	Fashion loop of several turns of wire and radiate signal into loop of receiver.	455kHz 30% Mod. at 400Hz	Point of non-interference. (on/ about 600kHz)	Output meter across voice coil.	T32 Adjust for maximum output.
AM-RF ALIGNMENT						
(2)	AM	"	511kHz	Tuning capacitor fully closed.	"	L36 (AM OSC Coil) Adjust for maximum output.
(3)	AM	"	1,650kHz	Tuning capacitor fully open.	"	CT1-4 (AM OSC Trimmer) "
(4)	AM	"	550kHz	Tune to signal.	"	(*1) L35 (AM ANT Coil) Adjust for maximum output. Adjust L35 by moving coil bobbin along ferrite core.
(5)	AM	"	1,500kHz	"	"	CT1-3 (AM ANT Trimmer) Adjust for maximum output. Repeat steps (2)~(5).
(*1) Cement antenna bobbin with wax after completing alignment.						

■ FM ALIGNMENT

BAND	SIGNAL GENERATOR or SWEEP GENERATOR		RADIO DIAL SETTING	INDICATOR (ELECTRONICS VOLTMETER or SCOPE)	ADJUSTMENT	REMARKS	
	CONNECTIONS	FREQUENCY					
FM-IF ALIGNMENT							
(1)	FM	High side thru. 0.001μF to test point ⑤. Negative side to test point ③.	10.7MHz (SWP.)	Point of non-interference. (on/ about 90MHz)	Connect vert. amp. of scope to test point ⑤. Negative side to test point ③.	T31 (FM 1st IFT)	Adjust for maximum amplitude. (Refer to fig. 1.)
(2)	FM	"	"	"	"	T33 (FM 2nd IFT)	Adjust for maximum amplitude. (Refer to fig. 2.)
FM-RF ALIGNMENT							
(3)	FM	Connect to test point ⑤ through FM dummy antenna. Negative side to test point ②.	86.2MHz	Variable capacitor fully closed.	Output meter across voice coil.	L34 (FM OSC Coil)	(*) Adjust for maximum output.
(4)	FM		109.2MHz	Variable capacitor fully open.	"	CT1-2 (FM OSC Trimmer)	"
(5)	FM		106MHz	Tune to signal.	"	CT1-1 (FM ANT Trimmer)	(*) Adjust for maximum output. Repeat steps (3)~(5).
(*)2 Three output responses will be present; proper tuning is the center frequency.							

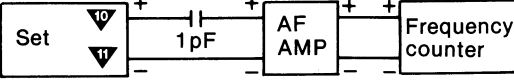
■ SEPARATION ALIGNMENT

ITEM	FM SIGNAL GENERATOR SOURCE CONNECTION	EQUIPMENT CONNECTION ELECTRONIC COUNTER	ADJUSTMENT	SPECIFICATION	REMARKS
Adjustment of pilot signal.	98MHz, 60dB Connect to test point ⑩ through FM dummy antenna. Negative side to test point ⑨.	⑩... (+) ⑨... (-)	VR31	19kHz	Adjust VR31, for 19kHz ± 100Hz reading on electronics counter.

■ BATTERY BACK-UP CIRCUIT ALIGNMENT (Note: Disconnect AC power cord)

DC POWER SUPPLY		FREQUENCY COUNTER	ADJUSTMENT	REMARKS
CONNECTIONS	VOLTAGE			
(+) Side... ⑩ (-) Side... ⑨	9 volts	(+) Side..... ⑩ (-) Side..... ⑨	VR1 (Semi-fixed)	Adjust VR1 for 2.4kHz ± 15Hz on frequency counter reading. (*3, 4, 5)

- *3. Connect 1pF capacitor to the test point ⑩.
*4. Amplify its output signal by using the AF Amp.
*5. Measure the frequency.



■ ALIGNMENT POINT

* Please refer to Circuit Board and Wiring Connection Diagram for point locations.

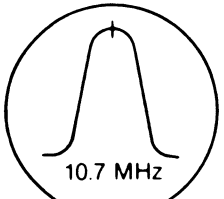


Fig. 1

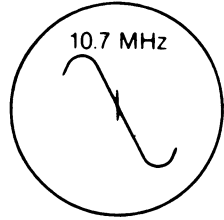


Fig. 2

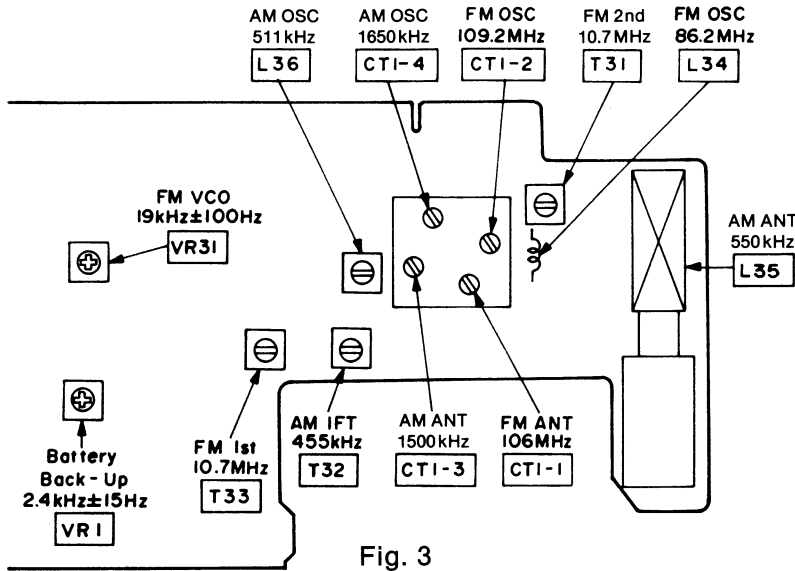


Fig. 3

CABINET, PACKING AND ACCESSORY LIST

Notes:

1. The letter in circles in the Ref. No. column indicates the color of the product.
Ⓚ... Black Type, Ⓜ... White Type, Ⓛ... Lavender Type
2. Ⓜ mark stands for that the parts are supplied from MESA.

Ref. No.	Part No.	Part Code	Description	Ref. No.	Part No.	Part Code	Description
CABINET AND CHASSIS				K12	Ⓚ	RBC1080ZA-0	015 702 4431 7 BUTTON Ⓜ
K2	RMP264ZA	015 652 1462 9	DISPLAY HOLDER	K12	Ⓛ	RBC1080ZA-1	015 702 4430 8 BUTTON Ⓜ
K3	RJB5009WA-1		BATTERY CASE Ⓜ	K12	Ⓜ	RBC1080ZA-2	015 702 4429 1 BUTTON Ⓜ
K4	Ⓚ RKF882ZA-0	015 802 3084 3	REAR CABINET Ⓜ	K13	ⓀⓁ	RBC1081ZA-0	015 702 4428 2 BUTTON Ⓜ
K4	Ⓜ RKF882ZA-8	015 802 3083 4	REAR CABINET Ⓜ	K13	Ⓛ	RBC1081ZA-1	015 702 4427 3 BUTTON Ⓜ
K4	Ⓛ RKF882ZA-91	015 802 3082 5	REAR CABINET Ⓜ	K14	Ⓚ	RBD461ZA-0	015 700 4604 4 KNOB, VOLUME Ⓜ
K5	Ⓚ RYMCX210MKS8	015 800 6582 8	FRONT CABINET ASS'Y Ⓜ	K14	Ⓛ	RBD461ZA-1	015 700 4603 5 KNOB, VOLUME Ⓜ
K5	Ⓜ RYMCX210MKS8	015 800 6581 9	FRONT CABINET ASS'Y Ⓜ	K14	Ⓜ	RBD461ZA-2	015 700 4602 6 KNOB, VOLUME Ⓜ
K5	Ⓛ RYMCX210MK91	015 800 6580 0	FRONT CABINET ASS'Y Ⓜ	K15		XTV3+12G-M	SCREW
K6	XTV3+8G-M	005 501 4601 5	SCREW	K16		XTV3+20G	005 501 2439 5 SCREW
K7	RJS3L3Z	003 400 5635 9	SOCKET	K17		RDG5883ZA	015 745 1121 1 GEAR Ⓜ
K8	RJT707Z	003 410 5629 1	TERMINAL	K18		XSN26+C6	005 500 1364 6 SCREW
K9	RJP3G4Y	003 402 1889 5	PLUG	K19		RUA761ZA-0	015 630 2485 0 CHASSIS
K10	RASBP33ZA-D		SPEAKER Ⓜ	K20		RDY9153ZA	015 713 2032 3 SHAFT Ⓜ
K11	Ⓚ RBN763ZA-0	015 700 4601 7	KNOB, TUNING Ⓜ	K21		XUC5FY	005 512 0144 4 C RING
K11	Ⓛ RBN763ZA-1	015 700 4600 8	KNOB, TUNING Ⓜ	K22		RDP335ZA-0	015 710 0754 1 POINTER Ⓜ
K11	Ⓜ RBN763ZA-2	015 700 4599 4	KNOB, TUNING Ⓜ	K23		RUP2258ZAU	003 483 2737 3 P.C.B. Ⓜ
				K24		RMC1150ZA	015 601 1116 9 SHIELD PLATE Ⓜ

Ref. No.	Part No.	Part Code	Description	Ref. No.	Part No.	Part Code	Description
PACKINGS				P4	RPH587ZA	015 979 0422 3	SHEET Ⓜ
P1	XZB40X75A02	015 978 0529 8	PROTECTION COVER	ACCESSORIES			
P2	RPK2459ZA	015 972 2030 2	CARTON BOX Ⓜ	A1	RQX4957ZA	015 983 4983 3	INSTRUCTION MANUAL Ⓜ
P3	RPN9553ZA	015 977 3434 0	PAD Ⓜ	A2	RJP0F31ZA		PLUG, STEREO CORD Ⓜ

RESISTOR and CAPACITOR PARTS LIST

Numbering System of Resistor

Example:

ERD	25	F	J	101
Type	Wattage	Shape	Tolerance	Value (100Ω)
ERJ	6G	C	J	2R2
Type	Wattage	Shape	Tolerance	Value (2.2Ω)

Numbering System of Capacitor

Example:

ECKD	1H	102	Z	F
Type	Voltage	Value (1000pF)	Tolerance	Peculiarity
ECEA	50	M	R47	
Type	Voltage	Peculiarity	Value (0.47 μF)	

Resistor Type	Wattage	Tolerance
ERD: Carbon Resistor	10 : 1/8W	F : ±1%
ERC: Solid Resistor	25 : 1/4W	G : ±2%
ERF: Incombustible	50 : 1/2W	J : ±5%
Box-Shaped	18 : 1/8W	K : ±10%
Wire-Wound	14 : 1/4W	M : ±20%
Resistor	12 : 1/2W	
ERG: Metal Oxide-Film	1 : 1W	
Resistor	2 : 2W	
ERM: Wire-Wound	3 : 3W	
Resistor	S1 : 1/2W	
ERO: Superstable	S2 : 1/2W	
Metal Film	6G : 1/10W	
Resistor	8G : 1/5W	
ERX: Metal-Film		
Resistor		
RRJ: Chip Resistor		
ERJ: Chip Resistor		

Capacitor Type	Voltage	Tolerance
ECCD: Ceramic Capacitor (Chitacon)	(ECCD, ECKD Type)	K : ±10%
ECKD: Ceramic Capacitor (Chitabar)	1H : 50V DC 2H : 500V DC	M : ±20%
ECFD: Semiconductor	(ECFD Type)	Z : +80%
Ceramic Capacitor	C : 12V DC D : 25V DC	J : ±5%
(ECQ Type)	E : 50V DC	G : ±2%
ECE: Electrolytic Capacitor	05 : 50WV DC 1 : 100WV DC	F : ±1%
ECS: Tantalum Fixed	(ECE, ECS Type)	C : ±0.25pF
Electrolytic Capacitor	0G : 4V 0J : 6.3V	D : ±0.5pF
ECQ: Polystyrene Film	1A : 10V 1C : 18V	F : ±1pF
Capacitor	1E : 25V 1V : 35V	
ECQS: Polystyrene Film	1H : 50V 1J : 63V	
Capacitor	2A : 100V	
ECQS: Polypropylene Film		
Capacitor		
ECQV: T.F. Capacitor		
ECU: Chip Capacitor		
RCU: Chip Capacitor		
ECBT: Cylindrical Ceramic		
Capacitor		

* Capacity are in microfarads (μF) unless specified otherwise, P=Pico-farads.

* Resistance are in ohms (Ω), unless specified otherwise, 1K=1,000Ω, 1M=1,000KΩ

Ref. No.	Part No.	Part Code	Ref. No.	Part No.	Part Code	Ref. No.	Part No.	Part Code
RESISTORS			R72, R73	ERDS2TJ332	001 152 2367 1	C51, C52	ECFT1C223MD	001 108 0565 3
R1, R2	ERDS2TJ121	001 152 2349 1	R74, R75	ERDS2TJ103	001 152 2347 3	C53, C54	ECFT1C223MD	001 108 0565 3
R3	ERDS2TJ680	001 152 2448 9	R101	ERDS2TJ104	001 152 2348 2	C55	ECEA0JU221	001 120 2925 9
R4	ERD25FJ181	001 152 0247 4	R102	ERDS2TJ224	001 152 2433 6	C56	ECFT1C223MD	001 108 0565 3
R5	ERD25FJ121	001 152 0225 0	R103	ERDS2TJ104	001 152 2348 2	C58	ECFT1C333MD	001 108 0569 9
R6	ERDS2TJ104	001 152 2348 2	R104	ERDS2TJ224	001 152 2433 6	C59	ECEA1HU010	001 120 2960 6
R9	ERDS2TJ102	001 152 2346 4	R107	ERDS2TJ103	001 152 2347 3	C60	ECFT1C223MD	001 108 0565 3
R10	ERDS2TJ222	001 152 2363 5	R108	ERDS2TJ151	001 152 2426 5	C61	ECEA50ZR47E	001 120 1287 0
R11	ERDS2TJ103	001 152 2347 3	R109	ERDS2TJ103	001 152 2347 3	C62	ECEA1HU010	001 120 2960 6
R12, R13	ERDS2TJ473	001 152 2363 3	R110	ERDS2TJ151	001 152 2426 5	C63	ECFT1C333MD	001 108 0569 9
R14	ERDS2TJ394	001 152 2441 6	R111, R114	ERDS2TJ121	001 152 2349 1	C64	ECEA1HU010E	
R15, R16	ERDS2TJ562	001 152 2445 2	R115	ERDS2TJ105	001 152 2422 9	C65	ECQP2A102JZT	
R19, R21	ERDS2TJ103	001 152 2347 3	R118, R119	ERD25VJ220	001 152 2086 5	C66	ECFT1C153MD	001 108 0564 4
R22, R23	ERDS2TJ103	001 152 2347 3	R120, R121	ERDS2TJ220	001 152 2430 9	C67	ECEA50ZR47E	001 120 1287 0
R24	ERDS2TJ103	001 152 2347 3	R123	ERDS2TJ224	001 152 2433 6	C68	ECEA0JU471E	
R31, R32	ERDS2TJ470	001 152 2442 5	R124, R125	ERDS2TJ820	001 152 2453 2	C69	ECEA1HU010E	
R33	ERDS2TJ474	001 152 2443 4	R201, R202	ERDS2TJ103	001 152 2347 3	C70	ECEA1HU010	001 120 2960 6
R34	ERDS2TJ471	001 152 2361 5	R203	ERDS2TJ103	001 152 2347 3	C71	ECKD1H471KB	001 103 1551 0
R35	ERDS2TJ470	001 152 2442 5	R204	ERDS2TJ104	001 152 2348 2	C72	ECQV1H124JZW	
R36	ERDS2TJ102	001 152 2346 4	R205	ERDS2TJ102	001 152 2346 4	C73	ECKD1H471KB	001 103 1551 0
R37	ERDS2TJ472	001 152 2362 4	CAPACITORS			C74	ECQV1H124JZW	
R38	ERDS2TJ222	001 152 2363 5	C1, C2	ECKT1H102ZF		C75, C76	ECEA1HU010	001 120 2960 6
R39	ERDS2TJ472	001 152 2362 4	C3, C4	ECKT1H102ZF		C77	ECEA50ZR47E	001 120 1287 0
R40	ERDS2TJ563	001 152 2446 1	C5	ECQP2A152JZ	001 106 3521 3	C78	ECEA0JU101B	
R41	ERDS2TJ472	001 152 2362 4	C6, C7	ECKT1H472MD		C79	ECKT1H102KBD	
R42	ERDS2TJ152	001 152 2350 8	C8	ECFT1C223MD	001 108 0565 3	C82	ECEA1AU470	001 120 2832 3
R43	ERDS2TJ821	001 152 2454 1	C9	ECEA1CU100	001 120 2958 0	C83	ECKD1H223ZF	001 103 1510 9
R44	ERDS2TJ682	001 152 2365 1	C11	ECEA1HU010	001 120 2960 6	C85	ECEA1HU010E	
R45	ERDS2TJ102	001 152 2346 4	C31	ECCT1H330K		C86	ECEA1CU221	001 120 2833 2
R46	ERDS2TJ223	001 152 2432 7	C34	ECKT1H102KBD		C87	ECFD1C223MD	001 108 0772 8
R47, R48	ERDS2TJ822	001 152 2455 0	C35	ECCT1H040C		C88	ECFT1C223MD	001 108 0565 3
R49	ERDS2TJ223	001 152 2432 7	C36	ECKT1H102KBD		C89	ECFW1C223MDY	001 108 1033 2
R50, R51	ERDS2TJ822	001 152 2455 0	C37	ECCT1H180KC		C101	ECKT1H472MD	
R52	ERDS2TJ102	001 152 2346 4	C39	ECCT1H330K		C102	ECCD1H331K	001 103 0578 3
R53, R54	ERDS2TJ224	001 152 2433 6	C40, C41	ECCT1H180KC		C103	ECKT1H472MD	
R55, R56	ERDS2TJ224	001 152 2433 6	C42, C43	ECKT1H103ZFD		C104	ECCD1H331K	001 103 0578 3
R57, R58	ERDS2TJ474	001 152 2443 4	C44	ECKT1H103ZFD		C105, C106	ECFT1C333MD	001 108 0569 9
R61	ERDS2TJ102	001 152 2346 4	C45	ECCD1H050CC	001 103 0251 3	C107, C108	ECFT1C103MD	001 108 0560 8
R62	ERDS2TJ470	001 152 2442 5	C46	ECFT1C223MD	001 108 0565 3	C109	ECKT1H102ZF	
R67	ERDS2TJ221	001 152 2431 8	C47	ECW1H331K		C110	ECEA1CU100	001 120 2958 0
R68	ERDS2TJ470	001 152 2442 5	C48	ECEA1HU010	001 120 2960 6	C111	ECQM1H224JZ	001 106 0746 0
R69	ERDS2TJ682	001 152 2365 1	C49	ECEA1CU100	001 120 2958 0	C112	ECEA1AU101	001 120 2830 5
R71	ERDS2TJ102	001 152 2346 4	C50	ECEA1HU2R2	001 120 3253 2	C113	ECEA0JU471	001 120 3620 9

Ref. No.	Part No.	Part Code	Ref. No.	Part No.	Part Code	Ref. No.	Part No.	Part Code
C114	ECEA1CU102	001 120 3000 1	C120	ECEA0JU471	001 120 3620 9	C207	ECKT1H103ZFD	
C115	ECEA1AU101	001 120 2830 5	C121, C122	ECEA1CU100	001 120 2958 0	C208	ECEA1CS222	001 120 0265 0
C116	ECKT1H102ZF		C124	ECFT1C103MD	001 108 0560 8	C209	ECEA1CU102	001 120 3000 1
C117	ECEA1CU100	001 120 2958 0	C201, C202	ECKT1H103ZFD		C210, C211	ECKT1H103ZFD	
C118	ECEA1AU101	001 120 2830 5	C203, C204	ECKT1H103ZFD		C212	ECKT1H103ZFD	
C119	ECQM1H224JZ	001 106 0746 0	C205, C206	ECKT1H103ZFD				

ELECTRICAL PARTS LIST

Notes: 1. Important safety notice

Components identified by Δ mark have special characteristics important for safety.

When replacing any of these components, use only manufacturer's specified parts.

2. $\square$ mark stands for that the parts are supplied from MESA.

Ref. No.	Part No.	Part Code	Description	Ref. No.	Part No.	Part Code	Description
INTEGRATED CIRCUITS				VR1	EVND4AA00B25	001 180 2245 0	V.R.
IC1	TMS3459BNL		I.C. $\square$	VR31	EVND4AA00B14	001 180 2242 3	V.R.
IC31	RV1TA7358P	001 060 7868 4	I.C.	VR32	EWASJ2C95G15	001 174 8990 6	V.R. $\square$
IC32	RV1BA4236L	001 061 0259 6	I.C.	VR33	EWASE2C95D54	001 174 8989 9	V.R. $\square$
IC33	RV1BA1332L	001 060 6555 2	I.C.	VARIABLE CAPACITORS			
IC34	RV1BA6433	001 060 6559 8	I.C.	VC1	RCV4LC2VK	001 141 0421 9	VARICON
IC101	RV1LA4550	001 061 4712 0	I.C. $\square$	COILS AND TRANSFORMERS			
IC105	MN4066B	001 060 4344 9	I.C.	L34	RL04Y116		COIL $\square$
TRANSISTORS				L35	RLF2C63		COIL $\square$
Q31	2SC1359B	001 030 0923 0	TRANSISTOR	L36	RL02B105	001 210 9999 2	COIL
Q32	2SA952K1TA		TRANSISTOR	T31	RL14B153	001 215 2499 0	I.F.T
Q33, Q34	2SC945Q	001 030 1536 3	TRANSISTOR	T32	RL12B458	001 215 2381 3	I.F.T
Q35	2SC2001K1	001 030 4269 1	TRANSISTOR	T33	RL14B153	001 215 2499 0	I.F.T
Q101, Q102	2SA564Q-TA		TRANSISTOR	T201	Δ 1LTRCX210M-1	001 202 8791 6	POWER TRANSFORMER ASS'Y $\square$
Q201	2SA952L1	001 030 4127 4	TRANSISTOR	COMPONENT COMBINATIONS			
DIODES				Z31	RXABPWB6AW	001 230 2764 5	COMPONENT COMBINATION
D1, D2	RVD1SS133	001 032 6338 7	DIODE	FILTERS			
D5, D7	RVD1SS133	001 032 6338 7	DIODE	CF31	RVF107WDZ	001 241 0836 3	CERAMIC FILTER
D8	RVD1SS133	001 032 6338 7	DIODE	CF32	RVFSFU455B	001 241 0173 9	CERAMIC FILTER, 455KHZ
D31	LN253RPLF	001 032 6122 1	L.E.D	SWITCHES			
D32	LN229RP	001 032 0282 0	L.E.D	S1	RSS3D19X	003 431 3150 0	SW. $\square$
D33, D34	RVD1SS133	001 032 6338 7	DIODE	S2, S3	RSH1A45Z	003 435 4522 8	SW.
D37	MA4051MTA		DIODE	S4, S5	RSH1A45Z	003 435 4522 8	SW.
D101, D102	RVD1SS133	001 032 6338 7	DIODE	S6, S7	RSH1A45Z	003 435 4522 8	SW.
D103, D104	RVD1SS133	001 032 6338 7	DIODE	S8, S9	RSH1A45Z	003 435 4522 8	SW.
D201, D202	RVDERA1502		DIODE	S10	RSH1A45Z	003 435 4522 8	SW.
D203, D204	RVDERA1502		DIODE	S11, S12	RSS3B31Z	003 431 3138 6	SW. $\square$
D205, D206	RVDERA1502		DIODE	S31	RSS3B31Z	003 431 3138 6	SW. $\square$
D207, D208	RVDERA1502		DIODE	S101	ESB621655	003 435 6262 1	SW. $\square$
D209	MA150		DIODE	OTHERS			
D210	MA700TA	001 032 6197 2	DIODE	J1, J2	RJJD7S2Z	003 400 6898 4	JACK
VARIABLE RESISTORS							

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